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slang, the language of the street hoodlum and of his deliberate imitator, the college 'sport'; and, finally, in science, for the larger part of the current nomenclature of the brain. As scholarly anatomists it is at once our prerogative and our duty to scrutinize and reflect, and to deal with the language of our science in the same spirit and with the same discrimination that we maintain in regard to the parts of the body and the generalizations concerning them.

It may be that a crisis has been reached; that this is the turning-point. If defeat awaits us, let there be no doubt as to my attitude. Let me be regarded as the chief offender, and let the group of terms advocated by me be derided as 'Wilder's Scientific Volapük.' But if, rather, despite errors and reverses, we are in the end to overcome inertia and prejudice, then I trust that the labors and sacrifices of so many English-speaking anatomists for the simplification of anatomic nomenclature may be recognized in the designation: 'The Anglo-American System.'

Indeed, whatever be the fate of any particular set of terms, of this I am assured: that system will ultimately prevail which is approved and used by anatomists of the English-speaking race—the composite, all-absorbing, expanding, dominating race of the future.

In no spirit of national self-glorification, much less with any personal animosity, but rather as a friendly injunction to prepare for the inevitable, I shall not object if portions of this address (for all of which, be it understood, I alone am responsible) are interpreted as a declaration of intellectual independence; as a claim for the recognition of what is done in England and America upon the basis of its intrinsic value; and as a protest against an indifference which in some instances has seemed to lack even that semblance of consideration which at least was commonly maintained during

the manifestation, a generation ago, of what an American scholar characterized as a 'certain condescension observable among foreigners.'

Let me conclude with a passage in more cheerful vein:

"When the first little wave of the rising tide comes creeping up the shore the sun derides her, and the dry sand drinks her, and her frightened sisters pull her backward, and yet again she escapes; and still her expostulating sisters cling to her skirts, and the rabble of waves behind cry out against her boldness, and all the depths of the ocean seem rising to drag her down. And now the second rank of waves, who would have died of shame at being the first, have unwillingly passed the earlier mark of the little wave that led them; and now you may float in your ship, for lo! the tide is full. So it is with all systems of reform; though the pioneers be derided, the great needs of humanity behind push on to triumphant acquisition of the new order of things."

BURT G. WILDER.

CORNELL UNIVERSITY.

*THE BREEDING OF ANIMALS AT WOODS
HOLE DURING THE MONTH OF SEP-
TEMBER, 1898.*

WITH the month of September the record of the breeding habits of the summer fauna practically closes. Very few of the species continue to breed into October. The auftrieb, though less rich in species, is at the beginning of the month similar to that of late August, but after the first week the number of forms steadily decreases. It consists for the most part of crustacean larvæ, the bulk of the material being brachyuran and eupagurid.

The temperature of the water was constant at 72° F. for the first week. It then fell steadily until the 25th, when it reached 65° F., and remained at this point until the

close of the month. The density varied from 1.0208 to 1.0225.

Vertebrata. The fishes present no features of special interest, as the summer forms are still present, and no species is breeding. The surface skimmings show a few fry at intervals. On the 20th one or two larval flatfish, in which the eyes had just begun to migrate, were taken. About the 25th three smooth dogfish, *Galeus canis*, which had been confined in the 'Pool,' were killed, and twenty-seven embryos, 10 to 11 cm. long, were found in the oviducts.

Crustacea. None of the adult brachyura examined were breeding. Zoëæ were conspicuous in the auftrieb during the early part of the month, and later various megalops were abundant.

The zoëa of *Callinectes hastatus* was the most abundant form, lasting about two weeks. The megalops of this species was plentiful at all times, particularly on the 18th. Specimens in the laboratory changed to the beautifully-spotted 'first adult' on September 27th, 29th, and October 3d. Another zoëa (which I have not identified) was very abundant in the latter part of August and the first week of September, disappearing about the 11th. It resembles the zoëa of *Callinectes*, but has a longer rostrum and dorsal spine, and the exopodite of the antenna is a straight blade as long as the rostrum.

Among the Anomura, the larvæ of *Hippa* had disappeared on September 4th. Eupagurid zoëæ swarmed in August and the first week in September, and were present in decreasing numbers throughout the month. The 'glaucothœ-stage' was abundant at all times. Data relating to the breeding of *Eupagurus bernhardus* and *E. pollicaris* are scanty, but the few females of the latter species which were examined were without eggs. *E. annulipes* was brought in on the 4th, when a few were bearing eggs in early stages of development. Females of

E. longicarpus with eggs were taken as late as the 13th.

Among the Macroura, specimens of *Virbius zostericola* had eggs in the later stages on the 11th. Larvæ and young adults, ranging in length from 5 mm. to 10 or 15 mm., were present in the skimmings. Those of small size persisted throughout the month. *Palæmonetes vulgaris* was not breeding, but the larvæ (mostly the 'fifth' and 'sixth' stages of Faxon) were occasionally taken, and toward the end of the month several of the 'first adult stage' were found. A specimen of *Crangon vulgaris* with eggs was obtained on the 19th. *Heteromysis*, dredged at Vineyard Haven on the 12th, and off Nobska Point about a week later, had well-advanced eggs in the brood-pouch.

No adult Isopoda were examined, but immature *Idotea robusta* and *I. irrorata*, ranging in length from 2 mm. upward, frequently appeared in the skimmings.

Among the Amphipoda, a minute form, apparently a species of *Montagua*, was very common among the hydroids. On September 21st nearly all were carrying eggs in various stages of development. Many *Capprellæ* obtained at the same time bore embryos approaching maturity.

Squilla larvæ (5 mm. long) appeared at intervals throughout the month. Copepods were abundant at all times. *Diastylis* was taken in the evening and is apparently attracted by any artificial light. On the 12th a number of 'Goose Barnacles' had eggs in all the later embryonic stages, and some began to liberate nauplii about this date.

Mollusca. *Scycotypus* continued to deposit its 'egg-strings' during the first two weeks of the month. The breeding period of *Crepidula fornicata* had closed, but on the 19th I found a few specimens of *Crepidula plana* with eggs in early cleavage stages. The breeding period of *Littorina littorea* in American waters is not known. On the 20th great

numbers of young, about one millimeter in diameter, were found on the rocks at Nobska Point. During the latter part of August and the early part of September, Veligers, all apparently of one species, were conspicuous in the surface skimmings; these disappeared at about the time that the young *Littorina* were found.

Vermes. Mr. R. H. Johnson found *Bugula turrita* liberating embryos, even after the middle of the month.

Small specimens of *Nereis limbata* and certain allied forms occurred sparingly in the auftrieb. On the evening of the 30th *Autolytus* was still fairly abundant, and many of the females were carrying eggs in early stages of development. *Rhyncobolus* and *Diopatra* were not breeding.

Cœlenterata. With the exception of one or two minute forms, no Medusæ were found. *Gonionemus* was abundant in the Eel Pond, and specimens brought into the laboratory about the middle of the month extruded eggs. The greater part of these eggs did not reach the blastula, and none developed beyond this stage. Ctenophores *Mnemiopsis*, very conspicuous in late August, appeared in increasing numbers during September. *Obelia*, with a few ripe gonangia, was obtained on the 21st. *Pennaria tiarella* formed the bulk of the abundant hydroid-growths on the Fish Commission wharves, although a *Eudendrium*, probably *E. ramosum*, was plentiful. Here and there small patches of *Plumularia tenella* were found. East Chop and Edgartown were visited on the 12th. At the former place there were few colonies of *Pennaria*, but a great abundance of *Eudendrium* and *Plumularia*. At Edgartown I did not find either *Pennaria* or *Eudendrium*, but *Plumularia* occurred in dense masses, which literally covered the submerged woodwork of the wharves.

At Woods Hole the colonies of *Plumularia* were small and sterile, while at the other localities they were large and provided with

gonangia in the various stages of development.

The *Eudendrium* and *Pennaria* bore medusa-buds in all stages, and the latter species remained in fruit as late as the 21st, and perhaps later.

M. T. THOMPSON.

ECONOMICS IN MANUFACTURES.

ONE of the most difficult problems in practical economics, in the whole range of modern industrial systems, is that of securing a just and satisfactory method of insuring fair exchange of labor for capital or wages where large bodies of workmen are to be employed. Cooperation and innumerable plans of 'piece-work' and 'profit-sharing' have been proposed, and none have, in practice, been found either in the abstract entirely equitable or wholly satisfactory to the employer as securing sufficient output from his always burdensome investments, profit on his sales, or a contented and fair-minded relation between himself and his employés; nor has any system been found which fully satisfies the workman in either extent of total compensation, opportunity to secure compensation proportioned to his exertions and ability, or in abstract equity in distribution of profits.

One of the most promising of the later plans for a fair and honest and satisfactory distribution of profits and a very effective stimulus of the right spirit in both employer and employé was described, as a first experiment, to the American Society of Mechanical Engineers, some years ago, by Mr. F. A. Halsey, then or earlier manager of the Canadian Rand Drill Co., at Sherbrooke, Quebec, Canada. Mr. Halsey called his plan 'The Premium Plan of Paying for Labor,' and the title is indicative of its nature.*

The author of this system now reports the outcome of a considerable number of

* Trans. Am. Soc. Mech. Eng'rs; Vol. XII.